

REMARKS/ARGUMENTS

In response to the Official Action mailed June 2, 2005, Applicants amend their application and request reconsideration. In this Amendment claims 5 and 6 are cancelled leaving claims 1-4 and 7-9 pending.

The drawings were objected to as containing numerous reference numbers not described in the patent application. Amended drawings, free from the reference numbers not described, are supplied. Approval is requested.

An Information Disclosure Statement was filed August 5, 2005. An indication of consideration of the cited publications in the next communication is respectfully requested.

In this Amendment, all claims have been revised and amended for clarity and consistency with the application as filed. A basic structure of the semiconductor laser disclosed is exemplified by the embodiment of Figure 1. The semiconductor laser shown there has a central phase-shift region and two different diffraction gratings on opposite sides of the central phase-shifting structure. As readily observed from the figure, as well as being described in the patent application, the respective periods of the two diffraction gratings are different. As a result, the coupling coefficients for light traveling in opposite directions within the semiconductor laser are different on opposite sides of the central phase-shift region. Therefore, control of the mode of oscillation is advantageously achieved. All of the illustrated embodiments provide support for generic claim 1.

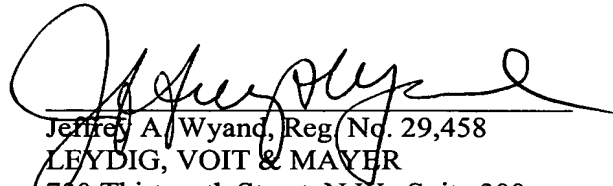
Claim 2 is rewritten as a dependent claim and is supported by the second embodiment of the patent application described at page 7 of the patent application. Likewise, claim 3 is supported by the embodiment of Figure 3, described as the third embodiment in the patent application. Claim 4 describes the structure of the respective gratings and the differences in those grating structures that produce the different coupling coefficients. Claim 4, like claim 1, is supported by each of the illustrated embodiments. Claim 7 finds particular support in the embodiment of Figure 6, described at page 8 of the patent application. The embodiment of Figure 7 supports claim 8 and claim 9 is supported by the seventh embodiment of the invention described at page 9 of the patent application.

A number of rejections of the examined claims were made based upon particular combinations of prior art publications. However, none of the prior art publications describes a semiconductor laser with a central phase-shift structure and diffraction gratings on opposite sides of that central phase-shift structure that (i) extend between the phase-shift structure and the end surfaces of the semiconductor laser and (ii) have respective different periods. Therefore, no cited reference anticipates nor can make obvious any claim now pending. Applicants note the semiconductor laser structures illustrated in Ohkura et al. (U.S. Patent

5,386,433). The semiconductor lasers shown there have structures that are symmetrical about a central phase-shift region, unlike the asymmetrical structure of the presently claimed semiconductor laser. The semiconductor laser of Weber (U.S. Patent 5,379,318) lacks a central phase-shift structure although apparently includes four diffraction gratings having four different periods and distributed on opposite ends of the semiconductor laser. Lo (U.S. Patent 5,617,436) likewise includes structures that are identical and symmetrical on opposite sides of a central phase-shift structure. Huang (U.S. Patent 6,574,261) describes semiconductor lasers that include entirely symmetrical structures on opposite sides of a central phase-shift structure. Finally Lu, a non-patent publication cited by the Examiner, does not appear to include a structure pertinent to the claims as clarified.

Since all of the claims now pending define structures clearly distinct from the prior art structures, upon reconsideration, the remaining claims should be allowed.

Respectfully submitted,



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Amendment or ROA - Regular (Revised 5-19-05)

AMENDMENTS TO THE DRAWINGS

The attached sheets include changes to Figures 1 and 3-7. The amendments to the drawing figures remove reference numbers that are not mentioned in the patent application.

Attachment: Replacement Sheet(s)